

Aruba AP-85 Outdoor Access Point Series



Installation Guide

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Altering this device (such as painting it) voids the warranty.



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This preface includes the following information:

- An overview of the contents of this manual
- A list of related documentation for further reading
- Aruba Networks support and service information

Guide Overview

- [Chapter 1, “AP-85 Series Hardware Overview” on page 7](#) provides a detailed hardware overview of the three AP-85 models: the AP-85TX, the AP-85FX, and the AP-85LX.
- [Chapter 2, “Outdoor Planning and Deployment Considerations” on page 15](#) provides key questions to ask and items to consider when deploying an outdoor wireless network.
- [Chapter 3, “AP-85 Series Installation” on page 21](#) describes the multi-step process for successful installation and deployment of an AP-85.
- [Appendix A, “Understanding Antennas” on page 31](#) provides key tools that will help you understand Aruba antenna specifications.
- [Appendix B, “Product Specifications” on page 41](#) includes product technical specifications and safety and regulatory compliance information.

Related Documents

The following documents are referred to in this guide and are considered components of the complete documentation set needed for successful AP deployment and management:

- *ArubaOS Quick Start Guide*
- *ArubaOS User Guide*
- *Aruba Mobility Management System User Guide*
- Aruba Outdoor Antenna Specifications

Contacting Aruba

Web Site Support	
Main Site	http://www.arubanetworks.com
Support Site	http://www.arubanetworks.com/support
Software Licensing Site	https://licensing.arubanetworks.com
Wireless Security Incident Response Team (WSIRT)	http://www.arubanetworks.com/support/wsirt.php
Support Email	support@arubanetworks.com
WSIRT Email Please email details of any security problem found in an Aruba product.	wsirt@arubanetworks.com

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About the AP-85 Series

The AP-85 Series consists of resilient, environmentally hardened, outdoor rated, dual-band IEEE 802.11a/b/g devices, which can be configured for deployment as a wireless access point, air monitor, mesh point, or mesh portal. This outdoor access point series is part of Aruba's comprehensive wireless network solution. The AP-85 Series works only in conjunction with an Aruba Mobility Controller and each AP can be centrally managed, configured, and upgraded through the controller.

The AP-85 Series consists of the following models:

- AP-85TX (Ethernet)
- AP-85FX (Multi-mode Fiber)
- AP-85LX (Single-mode Fiber)

AP-85 Series Operation

- Wireless access point (IEEE 802.11 a/b/g)
- Wireless air monitor (IEEE 802.11 a/b/g)
- Wireless access point with wireless backhaul support*
- Point-to-point wireless distribution system (WDS) bridge*
- Point-to-multi-point WDS bridge (host or slave)*
- Enterprise mesh point (MP; Mesh license required)*
- Enterprise mesh portal (MPP; Mesh license required)*
- Protocol-independent networking functionality
- IEEE 802.3af Power over Ethernet (PoE) compatible (AP-85TX only)



NOTE

Items noted with an asterisk (*) require a secure enterprise mesh license. Contact your Aruba sales representative for a complete listing of available software licenses.



CAUTION

Aruba Access Points are required to be installed by a professional installer. The professional installer is responsible for ensuring that grounding is available and it meets applicable local and national electrical codes.



WARNING

Do not work on an AP and do not connect or disconnect cables during periods of lightning activity.

Minimum Software Requirements

The AP-85 Series requires ArubaOS 3.2.0 or later.

ArubaOS software builds prior to version 3.2.0 do not support the AP-85 Series. If your network currently runs on a software build prior to 3.2.0, you must upgrade the software on your master and local controllers to 3.2.0 or later prior to installing an AP-85 in your existing network.

Package Checklist

Included with all three AP-85 models:

- Aruba AP-85 outdoor access point (TX, FX, or LX model)
- AP-85 wall/pole/mast mount kit (fixture with hardware)
- 8-foot DC outdoor rated power cable
- Weatherproof connector shell for RJ-45 terminated CAT 5 cable
 - LTW P/N LTWRJS-00PFFA-SL8001
- *Aruba AP-85 Outdoor Access Point Installation Guide*

Included with the AP-85FX/LX models only:

- 8-foot AC outdoor rated power cable (for FX/LX models only; US and EU options available)
- Fiber Optic Termination Kit
 - AP-85FX: Tyco P/N 1828618-1
 - AP-85LX: Tyco P/N 1828618-2



Inform your supplier if there are any incorrect, missing, or damaged parts. If possible, retain the carton, including the original packing materials. Use these materials to repack and return the unit to the supplier if needed.



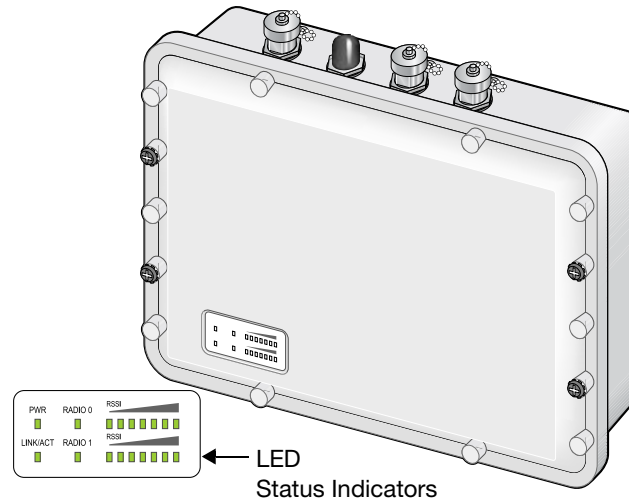
Optional accessories are available for use with the AP-85 and are sold separately. Refer to [Optional Accessories on page 13](#) for further details.

Hardware Model Overview

AP-85 Series Front View

The front of the AP-85 Series consists of LED status indicators (see [Figure 1](#)). For descriptions of the LEDs and their behavior, refer to [LED Status Indicators](#) on page 12.

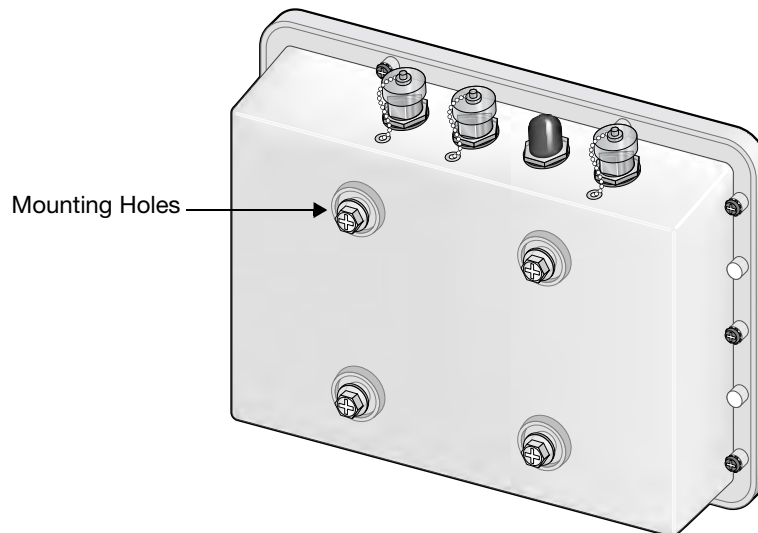
Figure 1 AP-85 Series Front View



AP-85 Series Rear View

The rear of the AP-85 Series consists of four mounting holes (see [Figure 2](#)). Refer to [Chapter 3, “AP-85 Series Installation”](#) on page 21 for mounting and installation instructions.

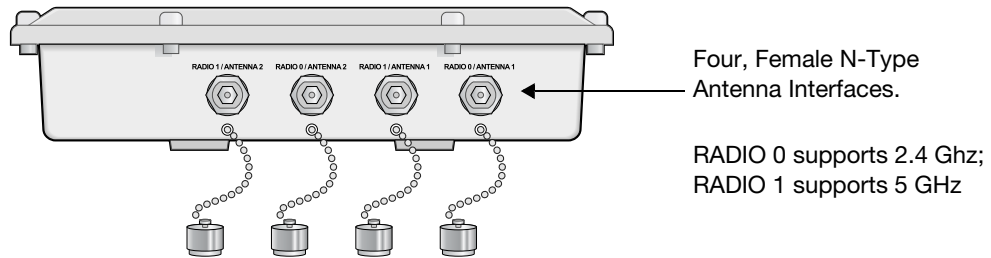
Figure 2 AP-85 Series Rear View



AP-85 Series Top View

The top of the AP-85 Series consists of four, female N-type antenna interfaces (see [Figure 3](#)).

Figure 3 AP-85 Series Top View



The AP-85 Series requires the use of detachable, outdoor rated antennas. Select the correct antenna type to support the required frequency band (2.4 or 5 GHz) and the desired coverage pattern.

The four, female N-type antenna interfaces on the AP-85 models are grouped into diversity pairs, one pair is marked as RADIO 0 and the other pair is marked as RADIO 1. RADIO 0 supports 2.4 GHz frequency band antennas and RADIO 1 supports 5 GHz frequency band antennas.

To select the correct antenna type for the deployment, download and read Aruba's outdoor antenna specifications: <http://www.arubanetworks.com/products/access-points/antennas.php>.

For further details, see [Appendix A, "Understanding Antennas"](#) on page 31.



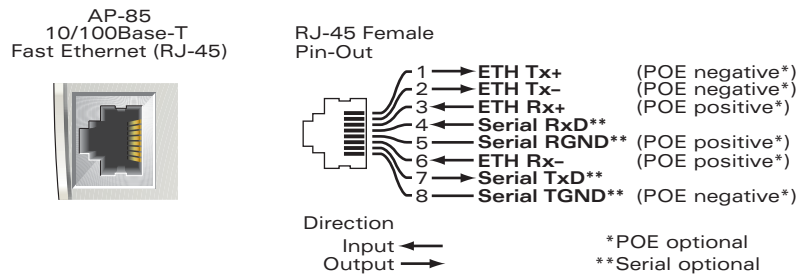
An Aruba Lightning Arrestor, AP-LAR-1, must be installed on each antenna port for protection against lightning induced surges. Failure to use an AP-LAR-1 can void the warranty of an Aruba outdoor AP model and renders the AP susceptible to failure from lightning induced surges.

AP-85TX Bottom View

The bottom of the AP-85TX unit (see [Figure 5](#)) consists of the following ports and connections:

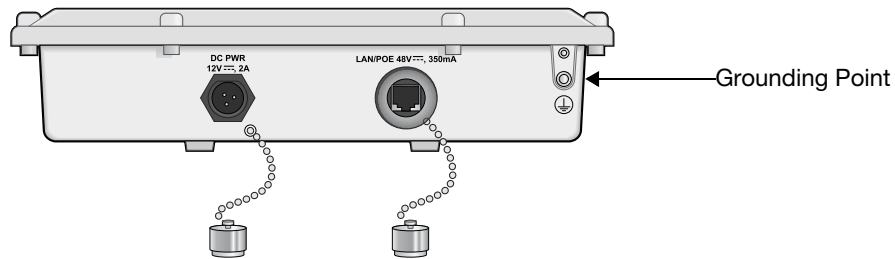
- DC PWR 12 VDC, 2 A: The AP is capable of accepting DC power in the range of 8 to 16 VDC. If the AP-85TX is not connected to a PoE source, the AP must be powered via a DC power source. An outdoor rated, two-wire, 8-foot long DC power cable (wiring harness) is supplied with the unit. For proper installation instructions, see [DC and AC Power Cables on page 29](#).
- LAN/POE 48 VDC, 350 mA: Also known as a 10/100Base-T Fast Ethernet (RJ-45) port, which is IEEE 802.3 BaseT and 802.3u 100BaseTX compliant. This port supports IEEE 802.3af Power over Ethernet (PoE), accepting 48 VDC as a standards defined Powered Device (PD) from a Power Sourcing Equipment (PSE), such as a PoE midspan injector. The AP-85TX also supports SPOE (Serial Power over Ethernet).

Figure 4 10/100Base-T Fast Ethernet (RJ-45) Port Pin-Out



- **Grounding Point:** It is important that the AP-85TX be properly grounded and a grounding point is provided on the bottom of the AP-85TX model. A professional installer should ensure that grounding is available and meets applicable local and national electrical codes.

Figure 5 AP-85TX Bottom View

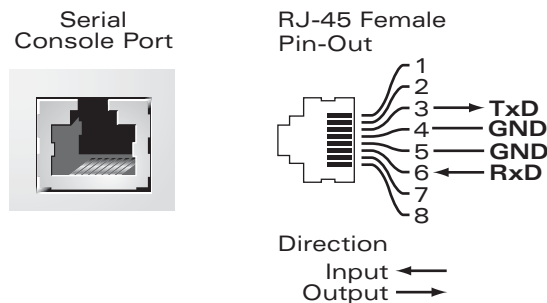


AP-85FX/LX Bottom View

The bottom of the AP-85FX/LX unit (see [Figure 5](#)) consists of the following ports and connections:

- **DC PWR 12 VDC, 2 A:** The AP is capable of accepting DC power in the range of 8 to 16 VDC. If the AP-85FX/LX is not connected to an AC power source, the AP must be powered via a DC power source. An outdoor rated, two-wire, 8-foot long DC power cable (wiring harness) is supplied with the unit. For proper installation instructions, see [DC and AC Power Cables on page 29](#).
- **LAN - OPTICAL:**
 - **AP-85FX:** This model consists of a 100BASE-FX data uplink port for multi-mode, dual-fiber network connectivity. A **multi-mode**, fiber patch cable with a duplex LC connector is required for use. The cable is not included and must be purchased separately.
 - **AP-85LX:** This model consists of a 100BASE-LX data uplink port for single-mode, dual-fiber network connectivity. A **single-mode**, fiber patch cable with a duplex LC connector is required for use. The cable is not included and must be purchased separately.
- **CONSOLE:** A serial console port is provided for connection to a terminal, allowing for direct local management.

Figure 6 Serial Console Port Pin-Out



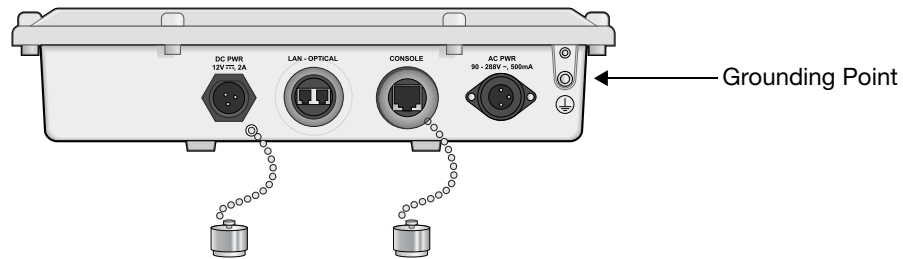
Communication settings for the serial console port are indicated in [Table 1](#).

Table 1 Console Terminal Settings

Baud Rate	Data Bits	Parity	Stop Bits	Flow Control
9600	8	None	1	None

- AC PWR 90-228 V~, 500 mA: The AP is capable of accepting AC power at the limits specified on the unit. If the AP-85FX/LX is not connected to a DC power source, the AP must be powered via an AC power source. An outdoor rated, three-wire, 8-foot long AC power cable (wiring harness) is supplied with the unit. For proper installation instructions, see [DC and AC Power Cables on page 29](#).
- Grounding Point: It is important that the AP-85FX/LX be properly grounded and a grounding point is provided on the bottom of the AP-85FX/LX model. A professional installer should ensure that grounding is available and meets applicable local and national electrical codes.

Figure 7 AP-85FX/LX Bottom View



LED Status Indicators

All AP-85 models include visual indicators for power, link, and radio status. Additionally, a seven LED array is provided for each radio, which indicates received signal strength (RSSI).



The RSSI LED indicators represent varying degrees in the RSSI level. The absence of a signal is indicated by no LED response, while full signal strength is indicated when all seven LEDs are active and lit.

[Table 2](#) provides an LED system breakdown for the AP-85 outdoor access points.

Table 2 AP-85 LED Status Indicators

LED	Function	Indicator	Status
PWR	AP Power/Ready Status	Off	No power to AP
		Flashing	Device booting, not ready
		On	Device ready
LINK/ACT (applicable to the AP-85TX only)	LAN/Network Link Status	Off	Ethernet link unavailable
		On (Yellow)	10 Mbs Ethernet link negotiated
		On (Green)	100 Mbs Ethernet link negotiated
		Blinking	Traffic on Ethernet link

Table 2 AP-85 LED Status Indicators

LED	Function	Indicator	Status
LINK/ACT (applicable to the AP-85FX/LX models only)	LAN/Network Link Status	Off	Ethernet link unavailable
		On (Green)	100 Mbs Ethernet link negotiated
		Blinking	Traffic on Ethernet link
RADIO 0	Radio 0 Status	Off	Radio 0 disabled
		On (Yellow)	Radio 0 enabled in WDS mode
		On (Green)	Radio 0 enabled in WLAN mode
RADIO 1	Radio 1 Status	Off	Radio 1 disabled
		On (Yellow)	Radio 1 enabled in WDS mode
		On (Green)	Radio 1 enabled in WLAN mode
RSSI (Radio 0)	RSSI Level for Radio 0	Off	RSSI disabled/no signal
		7 Step Progressive Bars 3/6/9/12/15/21/27 dB RSSI	Each bar represents a progressive increase in signal strength, with 7 bars representing maximum signal strength (100%). Minimum data rate: Two lit LEDs Maximum data rate: Six lit LEDs
RSSI (Radio 1)	RSSI Level for Radio 1	Off	RSSI disabled/no signal
		7 Step Progressive Bars 3/6/9/12/15/21/27 dB RSSI	Each bar represents a progressive increase in signal strength, with 7 bars representing maximum signal strength (100%). Minimum data rate: Two lit LEDs Maximum data rate: Six lit LEDs

Optional Accessories

The following items are available for use with AP-85 outdoor access points and are sold separately. Contact your Aruba sales representative for details and assistance.

- Aruba 85 Field Replaceable Mount Kit: P/N AP-85-MNT-S
- Aruba 85 Streetlight Power Tap Adaptor (8 ft): P/N AP-85-PT-1
- Aruba 85 AC Power Provisioning Cable (3 ft; indoor rated): P/N AP-85-CBL-1
- Aruba 85 Antenna Mount Bracket: P/N AP-85-MNT-1
- Aruba 85 AC Power Cable (8 ft): P/N AP-85-CBL-2-S
- Aruba 85 AC Power Cable (40 ft): P/N AP-85-CBL-3-S
- Aruba 85 DC Power Cable (8 ft): P/N AP-85-CBL-4-S
- Aruba Lightning Arrestor: P/N AP-LAR-1



AC power cables are available for use with the AP-85FX/LX models only.

Planning and Deployment Considerations

Prior to deploying an outdoor wireless network, the environment must be evaluated to plan for a successful Aruba WLAN deployment. Successfully evaluating the environment enables the proper selection of Aruba APs and antennas and assists in the determination of their placement for optimal RF coverage. This process is considered WLAN or RF planning and Aruba's system engineers can assist in the outdoor planning process.

Scale Requirements

The potentially immense scale of outdoor deployments requires consideration of factors that may not be as important in a typical indoor deployment:

- **Range (distance):** Range or distance between APs must be taken into account during the planning phase. Available AP mounting locations are often far less flexible in an outdoor environment. Regardless of these outdoor restrictions, the desired goal is to achieve results similar to an indoor deployment: a “dense” RF deployment that supports advanced Aruba features, such as ARM, efficient client roaming, and failover.
- **Elevation:** Proper consideration and planning for elevation differences between APs (AP to AP) and AP to Client can be *critical* to success. To plan for these differences in elevation, it is important to understand the 3D coverage pattern provided by the antennas that will be deployed in the environment.
- **Non-Fixed Considerations:** The RF environment might change on a day to day basis. Keep non-fixed items, such as shipping containers, vehicles, and future building construction, in mind when planning for an outdoor deployment.

Identifying Known RF Absorbers/Reflectors/Interferences Sources

Identifying known RF absorbers/reflectors/interference sources while out in the field during the installation phase is critical. Even though outdoor environments consist of fewer RF absorbers/reflectors/interference sources compared to indoor environments, ensure that these sources are identified and taken into consideration when installing and mounting an AP to its fixed outdoor location.

RF Absorbers

- Cement/Concrete
- Natural Items: Trees/vegetation
- Brick

RF Reflectors

- **Metal Objects:** Roof-installed air-conditioning equipment, chain link fences (depending on aperture size), other wire fences, or water pipes

RF Interference Sources

- Other 802.11a/b/g or broadband access equipment operating nearby

- Industrial RF welding equipment or other Industrial, Scientific and Medical (ISM) equipment that utilizes RF to heat or alter the physical properties of materials
- Military, Commercial Aviation or Weather Radar Systems

Line of Sight (Radio Path Planning)

AP-85 Series access points are capable of performing as one of the following:

- Point-to-point wireless distribution system (WDS) bridge
- Point-to-multi-point WDS bridge
- Enterprise mesh point (MP)
- Enterprise mesh portal (MPP)

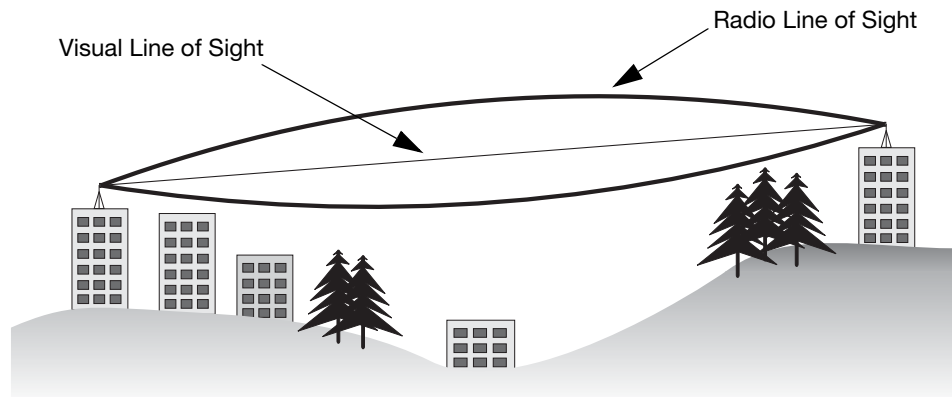


To configure the AP-85 as a mesh point or mesh portal, you must install a mesh software license on a Mobility Controller as a software license key. Contact your sales account manager or authorized reseller to obtain the software license. There are several mesh software licenses available that support different maximum number of APs. The licenses are cumulative; each additional license installed increases the number of APs (mesh nodes) supported by the Mobility Controller.

A wireless bridge or mesh link requires a “radio line of sight” between the two antennas for optimum performance. The concept of radio line of sight involves the area along a link through which the bulk of the radio signal power travels. This area is known as the first Fresnel Zone of the radio link. For a radio link, no object (including the ground) must intrude within 60% of the first Fresnel Zone.

Figure 8 illustrates the concept of a good radio line of sight.

Figure 8 *Line of Sight*



If there are obstacles in the radio path, there may still be a radio link but the quality and strength of the signal will be affected. Calculating the maximum clearance from objects on a path is important as it directly affects the decision on antenna placement and height. It is especially critical for long-distance links, where the radio signal could easily be lost.

When planning the radio path for a wireless bridge or mesh link, consider these factors:

- Avoid any partial line of sight between the antennas.
- Be cautious of trees or other foliage that may be near the path, or may grow and obstruct the path.
- Be sure there is enough clearance from buildings and that no building construction may eventually block the path.
- For very long distance links, the curvature of the earth (20 cm per km) may need to be considered in the calculation of relative heights.

- Check the topology of the land between the antennas using topographical maps, aerial photos, or even satellite image data (software packages are available that may include this information for your area).
- Avoid a path that may incur temporary blockage due to the movement of cars, trains, or aircraft.

Antenna Height

A reliable wireless bridge or mesh link is usually best achieved by mounting the antennas at each end high enough for a clear radio line of sight between them. The minimum height required depends on the distance of the link, obstacles that may be in the path, topology of the terrain, and the curvature of the earth (for links over 3 miles).

For long-distance links, the AP may have to be mounted on masts or poles that are tall enough to attain the minimum required clearance. Use the following table to estimate the required minimum clearance above the ground or path obstruction (for 5 GHz bridge links).

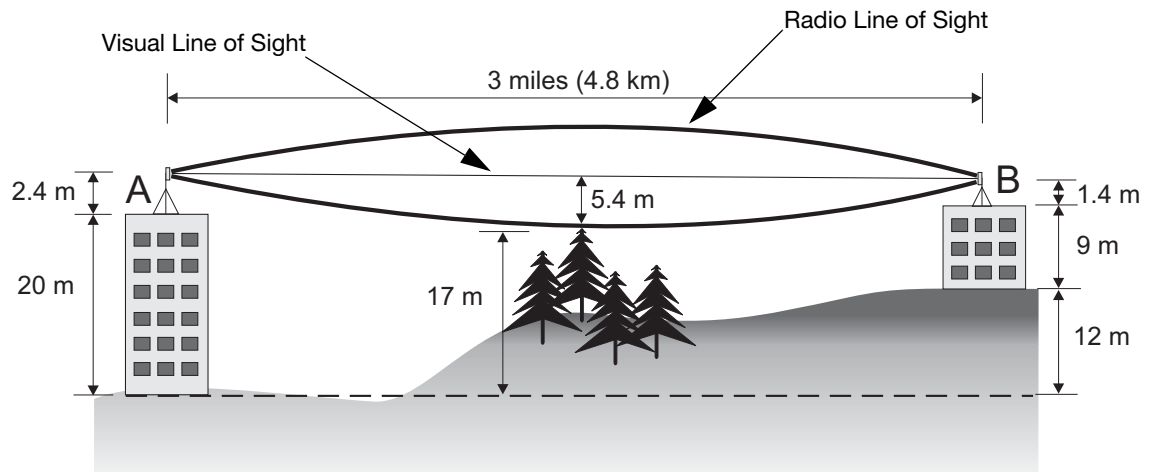
Table 3 *Antenna Minimum Height and Clearance Requirements*

Total Link Distance	Max Clearance for 60% of First Fresnel Zone at 5.8 GHz	Approximate Clearance for Earth Curvature	Total Clearance Required at Mid-point of Link
0.25 mile (0.402 km)	4.6 ft (1.4 m)	0.007 ft (0.002 m)	4.6 ft (1.4 m)
0.5 mile (0.805 km)	6.2 ft (1.9 m)	0.03 ft (0.010 m)	6.2 ft (1.9 m)
1 mile (1.6 km)	8.9 ft (2.7 m)	0.13 ft (0.04 m)	8.9 ft (2.7 m)
2 miles (3.2 km)	12.5 ft (3.8 m)	0.5 ft (0.15 m)	13.1 ft (4.0 m)
3 miles (4.8 km)	15.4 ft (4.7 m)	1.0 ft (0.3 m)	16.4 ft (5.0 m)
4 miles (6.4 km)	17.7 ft (5.4 m)	2.0 ft (0.6 m)	19.7 ft (6.0 m)
5 miles (8 km)	20 ft (6.1 m)	3.0 ft (0.9 m)	23 ft (7.0 m)
7 miles (11.3 km)	23.6 ft (7.2 m)	6.2 ft (1.9 m)	30 ft (9.1 m)
9 miles (14.5 km)	27 ft (8.2 m)	10.2 ft (3.1 m)	37 ft (11.3 m)
12 miles (19.3 km)	30.8 ft (9.4 m)	18.0 ft (5.5 m)	49 ft (14.9 m)
15 miles (24.1 km)	34.4 ft (10.5 m)	28.0 ft (8.5 m)	62.7 ft (19.1 m)



To avoid any obstruction along the path, the height of the object must be added to the minimum clearance required for a clear radio line of sight. Consider the following simple example, illustrated in the figure below.

Figure 9 Antenna Height and Line of Sight



A wireless bridge or mesh link is deployed to connect building A to building B, which is located three miles (4.8 km) away. Mid-way between the two buildings is a small tree-covered hill. From the above table it can be seen that for a three-mile link, the object clearance required at the mid-point is 5.3 m (17.4 ft). The tree tops on the hill are at an elevation of 17 m (56 ft), so the antennas at each end of the link need to be at least 22.3 m (73 ft) high. Building A is six stories high, or 20 m (66 ft), so a 2.3 m (7.5 ft) mast or pole must be constructed on its roof to achieve the required antenna height. Building B is only three stories high, or 9 m (30 ft), but is located at an elevation that is 12 m (39 ft) higher than building A. To mount an antenna at the required height on building B, a mast or pole of 1.3 m (4.3 ft) is needed.



CAUTION

Never construct a radio mast, pole, or tower near overhead power lines.



NOTE

Local regulations may limit or prevent construction of a high radio mast or tower. If your wireless bridge or mesh link requires a high radio mast or tower, consult a professional contractor for advice.

Antenna Position and Orientation

Once the required antenna height has been determined, other factors affecting the precise position of the wireless bridge or mesh link must be considered:

- Be sure there are no other radio antennas within 2 m (6 ft) of the wireless bridge or mesh link. These include other WiFi radio antennas.
- Place the wireless bridge or mesh link away from power and telephone lines.
- Avoid placing the wireless bridge or mesh link too close to any metallic reflective surfaces, such as roof-installed air-conditioning equipment, tinted windows, wire fences, or water pipes. Ensure that there is at least 5 feet clearance from such objects.
- The wireless bridge or mesh link antennas at both ends of the link must be positioned with the same polarization direction, either horizontal or vertical. Proper alignment helps to maximize throughput.

Radio Interference

The avoidance of radio interference is an important part of wireless link planning. Interference is caused by other radio transmissions using the same or an adjacent channel frequency. You should first

scan your proposed site using a spectrum analyzer to determine if there are any strong radio signals using the 802.11a/b/g channel frequencies. Always use a channel frequency that is furthest away from another signal.

If radio interference is still a problem with your wireless bridge or mesh link, changing the antenna direction may improve the situation.

Weather Conditions

When planning wireless bridge or mesh links, you must take into account any extreme weather conditions that are known to affect your location. Consider these factors:

- **Temperature:** The wireless bridge or mesh link is tested for normal operation in temperatures from -30°C to 55°C. Operating in temperatures outside of this range may cause the unit to fail.
- **Wind Velocity:** The wireless bridge or mesh link can operate in winds up to 90 miles per hour and survive higher wind speeds up to 125 miles per hour. You must consider the known maximum wind velocity and direction at the site and be sure that any supporting structure, such as a pole, mast, or tower, is built to withstand this force.
- **Lightning:** To protect against lightning induced surges, the AP-85 requires lightning protection on the radio interface ports.



An Aruba Lightning Arrestor, AP-LAR-1, must be installed on each antenna port for protection against lightning induced surges. Failure to use an AP-LAR-1 can void the warranty of an Aruba outdoor AP model and renders the AP susceptible to failure from lightning induced surges.

- **Rain:** The wireless bridge or mesh link is weatherproofed against rain. However, it is recommended to apply weatherproof sealing tape around the Ethernet port and antenna connectors for extra protection. If moisture enters a connector, it may cause a degradation in performance or even a complete failure of the link. For long distance links, plan 0.7 dB of additional margin per km to allow for RF losses that occur during periods of heavy rain or snowfall.
- **Snow and Ice:** Falling snow, like rain, has no significant effect on the radio signal. However, a buildup of snow or ice on antennas may cause the link to fail. In this case, the snow or ice has to be cleared from the antennas to restore operation of the link.

Ethernet Cabling

When a suitable antenna location has been determined, you must plan a cable route from the wireless bridge or mesh link outdoors to a suitable power and/or network source.

Consider these points:

- The Ethernet cable length should never be longer than 90 m (295 ft).
- Determine a building entry point for the cable (if applicable).
- Determine if conduits, bracing, or other structures are required for safety or protection of the cable.
- For lightning protection at the power injector end of the cable, consider using a lightning arrestor immediately before the cable enters the building.

Grounding

It is important that the wireless bridge or mesh link, cables, and any supporting structures are properly grounded. Each AP-85 Series access point includes a grounding screw for attaching a ground wire. Be sure that grounding is available and that it meets local and national electrical codes.

Pre-Installation Network Setup

Once WLAN planning is complete and the appropriate products and their placement have been determined, installation and initial setup of the Aruba Mobility Controller(s) is required prior to deployment of Aruba Outdoor Access Points.

For initial setup of the Mobility Controller, refer to the *ArubaOS Quick Start Guide* for the software version installed on your controller.

Pre-Installation Checklist

Before installing your AP-85, ensure that the following requirements are met:

Table 4 AP-85 Pre-Installation Checklist

AP-85TX	AP-85FX/LX
<ul style="list-style-type: none"> ● Fast Ethernet (FE) cable of required length ● IEEE 802.3af compliant PoE source (Aruba Mobility Controller or Midspan device) or DC power source ● Aruba Mobility Controller configured and installed on the network ● Layer 2/3 network connectivity to your AP-85 ● One of the following network services: <ol style="list-style-type: none"> 1. Aruba Discovery Protocol (ADP) 2. DNS server with an “A” record 3. DHCP Server with vendor specific options 	<ul style="list-style-type: none"> ● Fiber patch cable of required length: <ol style="list-style-type: none"> 1. Single-mode fiber patch cable for the AP-85LX 2. Multi-mode fiber patch cable for the AP-85FX ● AC or DC power source ● Aruba Mobility Controller configured and installed on the network ● Layer 2/3 network connectivity to your AP-85 ● One of the following network services: <ol style="list-style-type: none"> 1. Aruba Discovery Protocol (ADP) 2. DNS server with an “A” record 3. DHCP Server with vendor specific options

Access Point Setup



It is important that you follow the guidelines in the previous section, [Pre-Installation Network Setup on page 21](#), prior to attempting to setup and install an AP-85.

Successful setup of an AP-85 is a multi-step process, which must be followed in the sequence listed:

1. Verifying Pre-Installation Connectivity
2. Provisioning the AP-85
3. Installing the AP-85
4. Verifying Post-Installation Connectivity
5. Configuring the AP-85



Aruba Networks, in compliance with governmental requirements, has designed the AP-85 such that only authorized network administrators can change configuration settings. For more information on AP configuration, refer to the *ArubaOS Quick Start Guide* and *ArubaOS User Guide*.



Access Points are radio transmission devices and as such are subject to governmental regulation. Network administrators responsible for the configuration and operation of Access Points must comply with local broadcast regulations. Specifically, Access Points must use channel assignments appropriate to the location in which the Access Point will be used.

1. Verifying Pre-Installation Connectivity

Before you install APs in a network environment, ensure that the APs will be able to locate and connect to the Mobility Controller when powered on.

Specifically, you must ensure the following:

- When connected to the network, each AP is assigned a valid IP address.
- APs are able to locate the Mobility Controller (Mobility ControllerDiscovery).

Refer to the *ArubaOS Quick Start Guide* for instructions on locating and connecting to the Mobility Controller.

2. Provisioning the AP

Provisioning parameters are unique to each AP. These local AP parameters are initially configured on the Mobility Controller which are then pushed out to the AP and stored on the AP itself. Aruba recommends that provisioning settings be configured via the ArubaOS Web UI only. Refer to the *ArubaOS User Guide* for complete details.



If the AP-85 is to be deployed in a mesh networking environment, the AP-85 must be provisioned as a mesh portal or a mesh point prior to deployment.

3. Installing the AP-85



RF Radiation Exposure Statement: This equipment complies with FCC RF radiation exposure limits. This equipment should be installed and operated with a minimum distance of 7.9 inches (20 cm) between the radiator and your body for 2.4 GHz and 5 GHz operations. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



Aruba Access Points, AP-LAR-1 lightning arrestors, and cable termination kits are required to be installed by a professional installer. The professional installer is responsible for ensuring that grounding is available and it meets applicable local and national electrical codes.



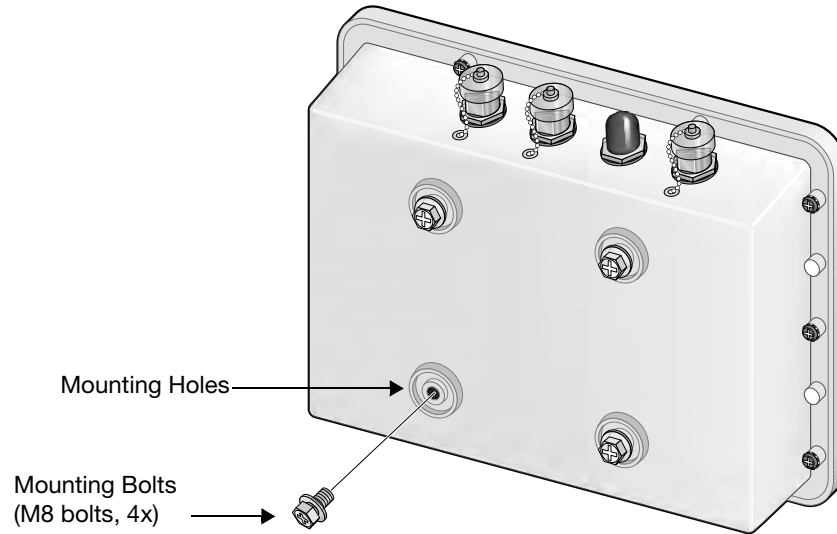
Do not work on an AP and do not connect or disconnect cables during periods of lightning activity.

Mounting the AP-85

Preparing the AP-85 for Installation

1. Install the four included mounting bolts (M8 bolts with captive flat washer) into the four mounting holes on the rear of the AP-85 (see [Figure 10](#)). Leave approximately two to three threads showing on the mounting bolts.

Figure 10 *Installing the Mounting Bolts*



Wall Mounting the AP-85

To wall mount an AP-85:

1. Secure the mounting plate to a flat wall using the appropriate screws and anchors for your mounting application (see [Figure 11](#)).



NOTE

Wall mount hardware is not included with the mounting plate and must be purchased separately for your mounting application. The mounting plate accepts the following screw/bolt sizes: M4, M5, SAE #8, and SAE #10.

Figure 11 *Attaching the Mounting Plate*

